DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: <u>DuPont Performance Coatings, Inc.</u>

Facility Address: 7961 Winchester Road, Front Royal, Virginia 22630

Facility EPA ID #: VAD 980 554 539

ground Manag	s all available relevant/significant information on known and reasonably suspected releases to soil, water, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste ement Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this El ination?
<u>X</u>	If yes - check here and continue with #2 below.
	If no - re-evaluate existing data, or
	If data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

El Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be "**contaminated**" above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater		<u>X</u>		
Air (indoors) ²		X	nonecontrate.	
Surface Soil (e.g., <2 ft)		X		
Surface Water	Autorities (1887)	<u>X</u>		
Sediment	***************************************	_X_		
Subsurf. Soil (e.g., >2 ft)		<u>X</u>		
Air (outdoors)		X		
and referencing sufficient If yes (for any m	suppor edia) - o rovide a	ting docu continue n explan	mentation after iden ation for	"YE," status code after providing or citing appropriate "levels," n demonstrating that these "levels" are not exceeded. tifying key contaminants in each "contaminated" medium, citing the determination that the medium could pose an unacceptable
	-			1 ((478)22 -1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-
If unknown (for	any med	iia) - skij	to #6 an	d enter "IN" status code.
Rationale and Reference(s):			

Site Background

The site is located in Warren County, Virginia, just north of Front Royal (Figure 1). It covers approximately 195 acres and is situated at the northeast corner of the intersection of U.S. Route 340/522 and Route 658. The nearest residence to the facility is approximately 60 feet from the property boundary and 1,000 feet from the manufacturing area to the northeast.

Since June 1981, the Front Royal plant has manufactured resin polymers finishes and paint related products for the automotive original equipment and after market. Prior to plant construction in 1981, the site was used for agricultural purposes.

The facility currently employs approximately 400 individuals and operates 24 hour per day 7 day per week. The facility layout includes an office area, two story manufacturing area, and a packaging/warehouse location. Areas around tanks and manufacturing units are typically concrete and asphalt. The active portion is completely surrounded by a 7-foot high chain link fence. Access to the site both vehicular and pedestrian is controlled through a single entrance. Security personnel on a 24-hour basis man this entrance. Security guards make frequent tours of the site perimeter to detect unauthorized entry.

The facility was constructed in a manner that did not place any product lines underground. The facility was built with each building having containment measures, including trench drains. An on-site spill basin allows for the detention of liquids for testing prior to on-site surface discharge. Stormwater is surface discharged on-site through a gate-controlled outfall. The entire facility is built on a grade that provides for secondary containment with an earthen dam.

Eleven solid waste management units (SWMUs) and two areas of concern (AOCs) were identified in the RCRA Site Visit Report (Tetra Tech, 2007). Releases have been documented at the two AOCs. However, remediation at each area included the excavation and off-site disposal of potentially impacted soil. A description of each SWMU and AOC is listed below:

1MU / AOC I 1U #1 - Raw rials Warehous 90 Day Storage 1U #2 - ufacturing Floo pactor 1U #3 - Solvent very Container ge Pad IU #5 - Process ling Tanks 510 (Solvent Recools) (Solvent Recools) U #6 - Solvent very Hazardous s)	Vame		This unit is used as a less than and to compact the waste into containment.	1 Rail The facility uses this station to transfer waste sludge WFR071 (Still Bottoms) from hazardous waste tank 5103 to railcar for offsite disposal (recycled as fuel). This station is considered a less than 90-day storage pad and has a surrounding berm and secondary containment system, which would capture any spills or releases. The secondary containment system consists of a capture sump/tray connected to a concrete trench system and is equipped with weir gates to contain any potential spill within the system. In addition, the secondary containment system is also equipped with hydrocarbon detectors that notify plant personnel if hydrocarbon compounds are detected, allowing for immediate response.			5103
SWN Mann Complement than SWN Mann Complement SWN SWN Stora Stora Stora SWN Stora Stora SWN	SWMU / AOC Name	SWMU #1 - Raw Materials Warehouse Less than 90 Day Storage Area	SWMU #2 - Manufacturing Floor Compactor	SWMU #3 - Solvent Rail Car Loading Station #3	SWMU #4 - Solvent Recovery Container Storage Pad	SWMU #5 - Process Blending Tanks 5101 and 5102 (Solvent Recovery Tanks)	SWMU #6 - Solvent Recovery Hazardous Waste Storage Tank 5103

46		There are two compactors an cubic yards. The dumpster is materials are disposed of in c	There are approximately 25 wiper pail satellite accumulation areas on-site. The pails are emptied daily and contents compacted into drums in SWMU #2.		On June 10, 1989, 600 gallons of resin were released onto the building roof. A volume meas which allowed approximately 300 gallons of material to enter the storm sewer drainage ditch ditches are lined with two feet of impermeable clay and constructed with weir gates to preve Upon completion of the remediation activities, this area was upgraded with a concrete liner a to the environment. The ditch was immediately diked off and the material, as well as all soil was excavated to a depth of 6-inches and placed in containers. The soil was disposed at a se sampled. Samples were analyzed and the analytical test results showed the soil did not exhit disposal. The State Water Control Board and county officials were involved in all remedial added to all resin storage tanks to prevent a spill of this nature from occurring again.	
SWMU #7 - Hazardous Waste Storage Tank 5104	SwMU #8 - Emergency	SWMU #9 - Non Hazardous Waste Trash Compactor	SWMU #10 - Satellite Accumulation Areas (Wiper Pails)	SWMU #11 - Dust System Bag House	AOC A - Roof Top Resin Tank Failure	AOC B - Roof Top Product Tank Overflow
	∞	6	<u> </u>	_	7	<u></u>

Data Set for EI Evaluation

Site data evaluated for this step included shallow confirmatory soil samples collected from six locations associated with AOC A (Roof Top Resin Tank Failure) and AOC B (Roof Top Product Tank Overflow) at locations illustrated on Figure 2. One surface soil sample (collected from depths less than 2 feet below ground surface [bgs]) and two subsurface soil samples (collected from depths greater than 2 ft bgs) were collected from each AOC to evaluate documented past releases at the areas. Soil sample locations are detailed in Figure 2. Soil samples were analyzed for Appendix IX volatile organic compounds (VOCs) plus tentatively identified compounds (TICs) using USEPA SW846 method 8260B. Analytical results are summarized in the table presented below and compared to the EPA, 2009, Regional Screening Levels for Chemical Contaminants at Superfund Sites, May 20.

					AO	CA	****
			Sample ID	HA-01	HA-02	HA-02	HA-03
		EPA SL	Date	11/15/06	11/15/06	11/15/06	11/15/06
		Ind Soil	Top (ft)	3.5	3.5	3.5	0.5
		Screening	Bottom (ft)	4	4	4	1
Analyte	units	Criteria	Duplicate #	FS	FS	DUP	FS
ACETONE	mg/kg	610000		<0.009 U	U.U19 J	0.038	0.034 J
CARBON DISULFIDE	mg/kg	3000		<0.001 U	<0.001 U	<0.001 U	<0.002 U
ETHYLBENZENE	mg/kg	29		<0.001 U	<0.001 U	<0.001 U	<0.002 U
METHYL ETHYL KETONE	mg/kg	190000		<0.005 U	<0.005 U	<0.005 ∪	<0.008 U
METHYLENE CHLORIDE	mg/kg	54		0.004 J	0.003 J	<0.003 U	0.005 J
TOLUENE	mg/kg	46000		<0.001 U	<0.001 U	<0.001 U	<0.002 U
XYLENES	mg/kg	2600		<0.001 U	<0.001 U	<0.001 U	<0.002 U
PERCENT MOISTURE	%			20.9	28.4	29.1	22.2

					AOC B	
			Sample ID	HA-01	HA-02	HA-03
		EPA SL	Date	11/15/06	11/15/06	11/15/06
		Ind Soil	Top (ft)	1.5	2	2
		Screening	Bottom (ft)	2	2.5	2.5
Analyte	units	Criteria	Duplicate #	F5	FS	FS
ACETONE	mg/kg	610000		0.046	0.012 J	0.026
CARBON DISULFIDE	mg/kg	3000		<0.001 U	0.002 J	<0.001 U
ETHYLBENZENE	mg/kg	29		<0.001 U	0.9	<0.001 U
METHYL ETHYL KETONE	mg/kg	190000		0.008 J	<0.004 U	<0.005 U
METHYLENE CHLORIDE	mg/kg	54		0.002 J	<0.002 U	0.003 J
TOLUENE	mg/kg	46000		<0.001 U	0.017	<0.001 U
XYLENES	mg/kg	2600		<0.001 U	3.4	<0.001 U
PERCENT MOISTURE	%			19.5	21,9	25.7

U – Not detected at stated reporting limit

Constituents of Potential Concern

Groundwater: Groundwater is not a media of concern at the site. The facility currently maintains 5 vapor wells surrounding the fuel oil tank. The wells are 50 feet in depth and penetrate into bedrock. No sampling data was provided for the wells. However, facility representatives have indicated that no vapors have ever been detected in these wells. In addition, there are no documented releases that have occurred that could have impacted groundwater conditions at the facility. Groundwater is not currently used as a potable or irrigation water supply at the facility. The plant utilizes local municipal potable water.

Air (indoors): Indoor air is not a media of concern. There are no documented releases that have occurred that could have impacted subsurface conditions with volatile constituents.

J - Estimated value

Surface soil: Surface soil is not a media of concern at the site. As indicated in the above table, no COPCs were identified at AOCs A and B. Releases are not indicated at the other SWMUs. In addition, the facility was constructed with concrete or gravel containment trenches that are clay lined.

Surface Water: Surface water is not considered a media of concern at the site. There are no surface water bodies of concern at the facility. The nearest surface water body is Crooked Run, located approximately 1000-feet west from the DuPont Front Royal property boundary. Crooked Run flows into the Shenandoah River. There are no known or documented releases to this or other surface water bodies.

Sediment: Similar to the arguments presented above for surface water, sediment is not considered a media of concern at the site.

Subsurface Soil: Subsurface soil is not a media of concern at the site. As indicated in the above table, no COPCs were identified at AOCs A and B. Furthermore, site-specific health and safety procedures are in place to effectively mitigate intrusive activities.

Air (outdoors): No COPCs were identified in soil at AOCs A and B. In addition, the majority of the site has some type of cover/cap present; thereby, minimizing potential exposure to soil. As a result, outdoor air is not a media of concern.

Screening Levels Used to Evaluate Site Data

Concentrations of constituents detected in the EI evaluation data set were compared to appropriate screening levels to assess potential impact to human health and the environment and to identify COPCs. Surface and subsurface soil concentrations were compared to USEPA Regional Screening Levels (SLs) for industrial soil (USEPA, 2009). The SLs represents a combined exposure including inhalation of particulates and volatile compounds, dermal absorption, and ingestion.

References:

Tetra Tech EC, Inc.. Final RCRA Site Visit Report. March 2007.

Footnotes:

¹ "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

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3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

	Po	otential Huma	in Receptors (U	inder Cuffent Col	<u>iditions)</u>		2
Contaminated Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater							
Air (indoors)	***************************************						***************************************
Soil (surface, e.g., <2 ft)		******		,		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Surface Water							
Sediment Soil (subsurface e.g., >2 ft)							
Air (outdoors)	***************************************	.,,				.,,	
Th (Outdoors)						***************************************	***************************************
Instructions for Summa	ıry Exposure I	athway Ev	aluation Tab	ole:			
 Strike-out specific Midentified in #2 above. 	ledia includin	g Human R	eceptors' sp	aces for Media	a which are n	ot "contamin	ated") as
2. enter "yes" or "no" f combination (Pathway)		completene	ss" under ea	ch "Contamin	ated" Media	– Human Red	ceptor
Note: In order to focus Human Receptor comb probable in most situat	inations (Path	ways) do n	ot have chec	k spaces ("	_"). While the	ese combinat	tions may not be
If no (pathway "YE" status code, after preventing a complete Work Sheet to analyze	explaining are exposure path	nd/or refere way from e	ncing condit	ion(s) in-place	, whether nat	tural or man-	to #6, and enter made, ray Evaluation
If yes (pathwa after providing support			"Contaminat	ed" Media - H	uman Recept	tor combinat	ion) – continue
If unknown (f status code	or any "Conta	minated" N	Aedia - Hum	an Receptor c	ombination) -	- skip to #6 a	nd enter "IN"
Rationale and Reference	ce(s):						
(See Discussion	under Item	No. 2 abo	ve.)				
					BAA////****	white have a second	
					J-///		
		,				,,-,-	***************************************
	,,,		-,-,				

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

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4. Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be " significant " (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?
If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."
If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."
If unknown (for any complete pathway) - skip to #6 and enter "IN" status code.
Rationale and Reference(s):

⁴ If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

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5. Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?
If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).
If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.
If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code.
Rationale and Reference(s):

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(Cirios), and obtain Superviso	RIS status codes for the Current Human E or (or appropriate Manager) signature and documentation as well as a map of the faci	exposures Under Control EI event code 125 date on the EI determination below (and lity):
the <u>DuPont Performance Cos</u> Royal, Virginia, under curren	man Exposures Under Control" has been vel Determination, "Current Human Exposuatings, EPA ID # VAD 980 554 539, located and reasonably expected conditions. This are of significant changes at the facility.	ires" are expected to be "Under control" at
NO - "Current Human Ex	xposures" are NOT "Under Control."	
	needed to make a determination.	
Completed by: (signature)(print)(title)	Angela Alonso Environmental Engineer	Date 9/11/09
(title) D	urwood Willis irector, Office of Remediation Programs	Date <u>9/11/09</u>
(EPA Region or State) <u>V</u>	A DEQ	•
Locations where References ma VA Department of Environt 629 East Main Street Richmond, VA 23219	y be found: nental Quality	
Contact telephone and e-mail nu (name) Erich Weissbart (phone #) (804) 698-4393 (e-mail) Erich Weissbart@c		-
LATER W CISSUALI (W)	icq.virginia.gov	

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.



